



Air Quality Permitting Statement of Basis

November 17, 2005

Permit to Construct No. P-050424

**The Amalgamated Sugar Co. LLC
Paul, Idaho**

Facility ID No. 067-00001

Prepared by:

Bill Rogers 
Regional Permit Program Coordinator
Air Quality Division

FINAL

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Acronyms, Units, and Chemical Nomenclatures

| | |
|------------------|--|
| acfm | actual cubic feet per minute |
| AFS | AIRS Facility Subsystem |
| AIRS | Aerometric Information Retrieval System |
| AQCR | Air Quality Control Region |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| °F | degrees Fahrenheit |
| DEQ | Department of Environmental Quality |
| EPA | U.S. Environmental Protection Agency |
| ft | foot or feet |
| HAPs | hazardous air pollutants |
| hr | hour or hours |
| IDAPA | a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act |
| kW | kilowatt |
| lb/bhp-hr | pounds per brake horsepower hour |
| lb/hr | pound per hour |
| MACT | Maximum Achievable Control Technology |
| MW/hr | megawatt per hour (equivalent to 1,000 kW-hours per hour) |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NSR | New Source Review |
| NO _x | nitrogen oxides |
| NSPS | New Source Performance Standards |
| % by wt | percent by weight |
| PM | particulate matter |
| PM ₁₀ | particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers |
| PSD | Prevention of Significant Deterioration |
| PTC | permit to construct |
| Rules | Rules for the Control of Air Pollution in Idaho |
| SIC | Standard Industrial Classification |
| SIP | State Implementation Plan |
| SO ₂ | sulfur dioxide |
| TASCO | The Amalgamated Sugar Co. LLC |
| T/yr | tons per any consecutive 12-month period |
| UTM | Universal Transverse Mercator |
| VOC | volatile organic compound |

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

The Amalgamated Sugar Co. LLC (TASCO) produces sugar from sugar beets.

3. FACILITY / AREA CLASSIFICATION

This facility is classified as a major facility for PSD permitting requirements, in accordance with IDAPA 58.01.01.205, because the facility emits or has the potential to emit a regulated NSR pollutant in quantities greater than or equal to applicable PSD major thresholds. The facility's steam plant (B&W Boiler and Erie City Boiler) is a designated facility as defined by IDAPA 58.01.01.006.27. The SIC code defining the facility is 2063, *Beet Sugar*.

The facility is classified as a major facility for Tier I operating permit requirements, in accordance with IDAPA 58.01.01.008.10, because the facility emits or has the potential to emit 100 T/yr or more of a regulated air pollutant listed in Subsection 006.82.a through e of the Rules. The facility is classified as a minor facility for HAP emissions.

The facility includes a natural gas-fired backup boiler that is subject to federal NSPS requirements in accordance with 40 CFR 60, Subpart Db for fuel monitoring and recordkeeping. The boiler is also subject to initial notification requirements in accordance with 40 CFR 60.7.

The AIRS information provided in the Appendix A defines the classification for each regulated air pollutant. The AIRS classification is "A" for PM₁₀, SO₂, CO, and NO_x; and "B" for VOCs and HAPs. This required information is entered into EPA's AIRS database.

This facility is located within AQCR 63 and UTM zone 12. The facility is located in Minidoka County, which is classified as unclassifiable for all regulated criteria air pollutants.

4. APPLICATION SCOPE

Electrical power for TASCO's MiniCassia facility is produced by two on-site generators and from electrical power purchased from Idaho Power. On October 13, 2005, one of the two on-site generators malfunctioned and was shutdown. Attempts to repair the generator on site were unsuccessful and the generator had to be removed and transported to Portland for repairs.

On October 25, 2005, TASCO submitted a PTC application to DEQ for the construction and operation of an emergency generator that would operate only until the damaged generator is repaired. TASCO anticipates the emergency generator would operate for approximately 60 days (1,440 hours), but requests it be allowed to operate for up to 90 days (2,160 hours). In addition to the time restriction, TASCO proposes to fuel the emergency generator with low sulfur ($\leq 0.1\%$ by wt) distillate fuel oil and limit electrical power production to 1.0 MW per hour, which is equivalent to 1,000 kW-hours per hour. Totalizers record the amount power produced in units of kW-hours. Therefore, the unit conversion from MW per hour to kW-hours per hour was necessary. After the damaged generator is repaired, reinstalled, and is operating properly, TASCO will request in writing that this permit be terminated.

4.1 Application Chronology

| | |
|------------------|---|
| October 25, 2005 | DEQ receives a PTC application to construct and operate a temporary emergency generator |
| October 28, 2005 | DEQ determines application complete |
| November 3, 2005 | DEQ receives revised application materials |

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action:

5.1 Equipment Listing

TASCO proposes to construct and operate the following emergency generator:

| | |
|--|---|
| Manufacturer: | Caterpillar |
| Power rating (MW): | 2.0 |
| Allowable power production (MW): | 1.0 |
| Allowable hours of operation (hr): | 2,160 |
| Allowable fuel type: | low sulfur ($\leq 0.1\%$ by wt.) distillate fuel oil |
| Stack height (ft): | 11.0 |
| Stack diameter (ft): | refer to DEQs modeling analysis |
| Exit gas volume (acfm): | 9,400 |
| Exit gas temperature ($^{\circ}\text{F}$): | 300 |

5.2 Emissions Inventory

The on-site generator that malfunctioned is operated with high pressure steam provided by the facility's B&W boiler. Without this generator on line, there will be a reduced steam usage from the B&W boiler, which TASCO estimates is approximately 7,500 pounds per hour. The reduced steam usage results in a decrease in emissions from the B&W boiler. TASCO took this into account in the emissions inventory prepared for this project. Tables 5.1 and 5.2 provide summaries of the emissions inventory provided by TASCO. The emissions estimates in the emissions inventory are based on the allowable operating limits referenced in Section 5.1. In the permit developed for this project, these limits are enforceable permit conditions that limit potential to emit.

Table 5.1 Emergency Generator Potential to Emit

| Pollutant | Emission Factor ¹ | Emissions | |
|-------------------------------|------------------------------|-----------|------|
| | (lb/bhp-hr) | lb/hr | T/yr |
| NO _x | 0.0134 | 19.5 | 21.0 |
| CO | 9.08E-04 | 1.3 | 1.4 |
| SO ₂ ² | 8.10E-04 | 1.2 | 1.3 |
| PM | 2.82E-04 | 0.4 | 0.4 |
| PM ₁₀ ³ | 2.32E-04 | 0.3 | 0.4 |
| VOC | 5.57E-04 | 0.8 | 0.9 |

¹ With the exception of SO₂, emissions were estimated based on stack testing conducted by Caterpillar

² EPA AP-42 Table 3.4-1 with S = 0.1

³ Based on EPA AP-42, PM₁₀ is 82.2% of PM

Table 5.2 Net Emissions Change of Emergency Generator and B&W Boiler

| Pollutant | Emergency Generator | | B&W Boiler ¹ | | Net Change | |
|-------------------------------|---------------------|-------------------|-------------------------|------|------------|------|
| | lb/hr | T/yr ² | lb/hr | T/yr | lb/hr | T/yr |
| NO _x | 19.5 | 21.0 | 8.25 | 8.91 | 11.3 | 12.1 |
| CO | 1.3 | 1.4 | 2.54 | 2.75 | -1.2 | -1.4 |
| SO ₂ ² | 1.2 | 1.3 | 3.30 | 3.56 | -2.1 | -2.3 |
| PM | 0.4 | 0.4 | 2.09 | 2.25 | -1.7 | -1.9 |
| PM ₁₀ ³ | 0.3 | 0.4 | 1.67 | 1.80 | -1.4 | -1.4 |
| VOC | 0.8 | 0.9 | 0.05 | 0.06 | 0.8 | 0.8 |

¹ Estimated based on a 7,500 lb/hr steam reduction

² Calculated using the allowable hours of operation – 2,160

5.3 Modeling

TASCO conducted a modeling analysis for this proposed project to ensure that emissions from the emergency generator will not cause or significantly contribute to a violation of any applicable ambient air quality standard. DEQ has reviewed TASCO modeling analysis and has determined the proposed project will not cause or significantly contribute to a violation of ambient air quality standards. DEQ's modeling review memorandum is presented as Appendix B.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 Permit to Construct Required

This proposed project is not exempt from PTC requirements in accordance with currently applicable exemption criteria contained in IDAPA 58.01.01.220, 221, or 222. Therefore, a PTC is required.

IDAPA 58.01.01.203 Permit Requirements for New and Modified Stationary Sources

TASCO has shown to the satisfaction of the DEQ that this proposed project will comply with all applicable local, state or federal emissions standards, will not cause or significantly contribute to a violation of any applicable ambient air quality standard, and will comply with all applicable state air toxics increments.

5.5 Permit Conditions Review

This section describes the permit conditions for this proposed project.

Permit Condition 2.3 limits visible emissions from the generator stacks to 20% opacity for no more than three minutes in any 60-minute period. The facility's Tier I operating permit requires a monthly visible emissions inspection of all potential sources of visible emissions. Compliance with Permit Condition 2.3 will be assessed through the Tier I operating permit requirement.

Permit Condition 2.4 limits electrical power production to 1,000 kW-hours per hour, averaged over any consecutive 24-hour period to limit emissions.

Permit Condition 2.5 limits operating hours to 2,160 to limit annual emissions.

Permit Conditions 2.6 and 2.7 limit the fuel type (low sulfur distillate fuel oil) and fuel sulfur content ($\leq 0.1\%$ by wt) in the fuel used by the emergency to limit emissions.

Permit Condition 2.8 requires monitoring and recordkeeping of the power production on a daily basis to ensure compliance with the electrical power production limit.

Permit Condition 2.9 requires monitoring and recordkeeping of the generators operating hours on a daily rolling basis to ensure compliance with the operating hours limit.

Permit Condition 2.10 requires monitoring and recordkeeping of the fuel sulfur content on an as-received basis to ensure compliance with the fuel type restriction and fuel sulfur content limit.

6. PERMIT FEES

This proposed project is subject to the PTC application fee of \$1,000 as required by IDAPA 58.01.01.224. The application fee was submitted with the original application on October 25, 2005. The proposed project is subject to a PTC processing fee as required by IDAPA 58.01.01.225. The increase in emissions is estimated to be 7.80 T/yr, which corresponds to a processing fee of \$2,500.00. The processing fee was received November 15, 2005.

This facility is a major facility and is subject to Tier I operating permit registration and registration fees. The facility is current with its Tier I fees.

Table 5.3 PTC PROCESSING FEE TABLE

| Emissions Inventory | | | |
|---------------------|----------------------------------|-----------------------------------|--------------------------------|
| Pollutant | Annual Emissions Increase (T/yr) | Annual Emissions Reduction (T/yr) | Annual Emissions Change (T/yr) |
| NO _x | 21.0 | 8.91 | 12.1 |
| SO ₂ | 1.30 | 3.56 | -2.3 |
| CO | 1.40 | 2.75 | -1.4 |
| PM ₁₀ | 0.40 | 1.80 | -1.4 |
| VOC | 0.90 | 0.06 | 0.8 |
| TAPS/HAPS | 0.0 | 0 | 0 |
| Total: | 25.0 | 17.08 | 7.80 |
| Fee Due: | \$ 2,500.00 | | |

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

DEQ's Twin Falls Regional Office was provided an electronic copy of the permit and statement of basis for review on November 15, 2005. Comments were received and incorporated into the permit and statement of basis as applicable.

7.2 Facility Review of Draft Permit

The facility was provided electronic copies of the permit and statement of basis on November 3, November 11, and November 15, 2005. Comments were received and incorporated into the permit and statement of basis as applicable.

7.3 Public Comment

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of the application materials, and all applicable state and federal rules and regulations, staff recommends that The Amalgamated Sugar Co. LLC be issued final PTC No. P-050424 for a temporary emergency generator to be constructed and operated at its MiniCassia facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

BR/sd Permit No. P-050424

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Appendix A

AIRS Information

P-050424

AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

Facility Name: The Amalgamated Sugar Co. LLC

Facility Location: MiniCassia Facility

AIRS Number: 067-00001

| AIR PROGRAM POLLUTANT | SIP | PSD | NSPS (Part 60) | NESHAP (Part 61) | MACT (Part 63) | SM80 | TITLE V | AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment |
|--------------------------|-----|-----|-------------------|---------------------|-------------------|------|---------|---|
| SO ₂ | A | A | | | | | A | U |
| NO _x | A | A | | | | | A | U |
| CO | A | A | | | | | A | U |
| PM ₁₀ | A | A | | | | | A | U |
| PT (Particulate) | A | A | | | | | | |
| VOC | B | B | | | | | B | U |
| THAP (Total HAPs) | | | | | | | B | U |
| APPLICABLE SUBPART | | | | | | | | |
| Db | | | | | | | | |

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B


Modeling Review

P-050424

MEMORANDUM

DATE: November 17, 2005

TO: Bill Rogers, Permitting Coordinator, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program 

PROJECT NUMBER: P-050424

SUBJECT: Modeling Review for the Amalgamated Sugar Company Permit to Construct Application for a temporary generator at their facility near Paul, Idaho.

1.0 Summary

The Amalgamated Sugar Company LLC (TASCO) submitted a Permit to Construct (PTC) application for a temporary generator at their Mini-Cassia manufacturing facility located near Paul, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the generator were submitted in support of a permit application to demonstrate the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02).

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses in combination with DEQ's staff analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the generator were below significant contribution levels (SCLs); or b) that predicted pollutant concentrations from facility-wide emissions, when appropriately combined with background concentrations, were below applicable air quality standards at receptor locations where the generator would cause an impact exceeding SCLs. Table 1 presents key assumptions and results that should be considered in the development of the permit.

| Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES | |
|---|--|
| Criteria/Assumption/Result | Explanation/Consideration |
| The generator will operate a maximum of 90 days, ceasing operations after January of 2006. | PM ₁₀ 24-hour background concentrations were adjusted to reflect this limited operation. Since the source is temporary, DEQ did not review the air impact analyses with the level of detail typically used for permanent installations. |
| Maximum PM ₁₀ 24-hour impacts from the generator were only slightly above the SCL. Impacts were below the SCL at most receptor locations for nearly all modeled 24-hour periods. | Special permit provisions are not needed to ensure NAAQS compliance, other than the temporary operation constraint and limiting operations such that emissions remain below the modeled rates. |

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The TASCO Mini-Cassia facility is located in Minidoka and Cassia County, designated as an attainment or unclassifiable area for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), lead (Pb), ozone (O₃), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from generator emissions exceed the significant contribution levels (SCLs) of IDAPA 58.01.01.006.91, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

2.2 Background Concentrations

Background concentrations were revised for all areas of Idaho by DEQ in March 2003¹. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations used in these analyses are listed in Table 3. Rural/agricultural default values were used for background concentrations. Since the generator will only operate through January 2006, 24-hour averaged PM₁₀ concentrations were revised to reflect this operational characteristic. TASCO submitted PM₁₀ monitoring data collected in Heyburn, Idaho at the Simplot site from November 2000 through January 2001. The maximum 24-hour PM₁₀ monitored concentration was 38.6 µg/m³.

¹ Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

| Table 2. APPLICABLE REGULATORY LIMITS | | | | |
|--|-------------------------|---|--|--|
| Pollutant | Averaging Period | Significant Contribution Levels^a (µg/m³)^b | Regulatory Limit^c (µg/m³) | Modeled Value Used^d |
| PM ₁₀ ^e | Annual | 1.0 | 50 ^f | Maximum 1 st highest ^g |
| | 24-hour | 5.0 | 150 ^b | Maximum 6 th highest ^j |
| Carbon monoxide (CO) | 8-hour | 500 | 10,000 ^j | Maximum 2 nd highest ^g |
| | 1-hour | 2,000 | 40,000 ^j | Maximum 2 nd highest ^g |
| Sulfur dioxide (SO ₂) | Annual | 1.0 | 80 ^f | Maximum 1 st highest ^g |
| | 24-hour | 5 | 365 ^j | Maximum 2 nd highest ^g |
| | 3-hour | 25 | 1,300 ^j | Maximum 2 nd highest ^g |
| Nitrogen dioxide (NO ₂) | Annual | 1.0 | 100 ^f | Maximum 1 st highest ^g |
| Lead (Pb) | Quarterly | NA | 1.5 ^h | Maximum 1 st highest ^g |

a. IDAPA 58.01.01.006.91

b. Micrograms per cubic meter

c. IDAPA 58.01.01.577 for criteria pollutants

d. The maximum 1st highest modeled value is always used for significant impact analysis

e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

f. Never expected to be exceeded in any calendar year

g. Concentration at any modeled receptor

h. Never expected to be exceeded more than once in any calendar year

i. Concentration at any modeled receptor when using five years of meteorological data

j. Not to be exceeded more than once per year

| Table 3. BACKGROUND CONCENTRATIONS | | |
|---|-------------------------|--|
| Pollutant | Averaging Period | Background Concentration (µg/m³)^a |
| PM ₁₀ ^b | 24-hour | 38.6 ^c |
| | annual | 26 |
| Carbon monoxide (CO) | 1-hour | 3,600 |
| | 8-hour | 2,300 |
| Sulfur dioxide (SO ₂) | 3-hour | 34 |
| | 24-hour | 26 |
| | annual | 8 |
| Nitrogen dioxide (NO ₂) | annual | 17 |

a. Micrograms per cubic meter

b. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

c. Based on Heyburn, Idaho data collected from November 2000 through January 2001

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used in the TASCO analyses.

| Table 4. MODELING PARAMETERS | | |
|-------------------------------------|---------------------------|---|
| Parameter | Description/Values | Documentation/Additional Description |
| Model | ISCST3 | version 04269 |
| Meteorological data | 2000 | Heyburn, Idaho surface data; Boise upper air data |
| Terrain | Considered | Elevation data from digital elevation model (DEM) files |
| Building downwash | Considered | The building profile input program (BPIP) was used |
| Receptor grid | Grid 1 | 200-meter spacing on an 8.0 km by 10.8 km grid |
| | Grid 2 | 50-meter spacing on a 2.5 km by 2.0 km grid |

3.1.1 Modeling protocol

A protocol was not submitted to DEQ prior to submission of the application. DEQ met with TASCO staff to discuss modeling methods, and modeling was conducted using methods and data presented in the *State of Idaho Air Quality Modeling Guideline*.

3.1.2 Model Selection

ISCST3 was used by TASCO to conduct the ambient air analyses. Although ISC-PRIME, with its superior PRIME downwash algorithm, is preferred in situations where downwash is important, it was not used in this instance because of complications when modeling hot, horizontal releases. The vertical stack gas velocity is set to 0.001 m/sec for horizontal releases to restrict plume rise resulting from momentum. To properly assess plume rise from thermal buoyancy of a heated release, the modeled stack diameter is increased to the point where the total volumetric flow of the modeled source (with the 0.001 m/sec stack gas velocity) is equal to that of the actual source. This approach cannot be used in ISC-PRIME because downwash impacts are calculated as a function of stack diameter.

3.1.3 Meteorological Data

Surface meteorological data collected at Heyburn, Idaho, from November 2000 through January 2001, were used for modeling TASCO. Upper air data from Boise, Idaho, were also used in the analyses. DEQ has determined these data are the most representative data available for the TASCO site.

PCRAMMET, the meteorological data preprocessor for ISCST-3, occasionally generates unrealistically low mixing heights as a result of interpolation algorithms used with the twice daily measured mixing heights. TASCO modeling was conducted using meteorological data corrected for low mixing heights. All mixing height values below 50 meters were replaced with a value of 50 meters.

3.1.4 Terrain Effects

The modeling analyses submitted by TASCO considered elevated terrain. Receptor elevations were obtained from USGS digital elevation model (DEM) files for the 7.5-minute Rupert, Rupert_NW, Burley, and Burley_NE quadrangles.

3.1.5 Facility Layout

DEQ verified proper identification of the facility boundary and buildings on the site by comparing the modeling input to a facility plot plan submitted with the application and aerial photographs of the area.

3.1.6 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the modeling analyses. The Building Profile Input Program (BPIP) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for ISCST3.

3.1.7 Ambient Air Boundary

The facility property boundary was used as the ambient air boundary in the modeling analyses. DEQ did not verify the measures used to prevent public access to areas inside the property boundary.

3.1.8 Receptor Network

The receptor grids used by TASC0 met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*.

3.2 Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application, the engineering technical memorandum, and the proposed permit. The following approach was used for DEQ verification modeling:

- All modeled emissions rates were equal to or greater than the facility's emissions calculated in the PTC application or the permitted allowable rate.
- More extensive review of modeling parameters selected was conducted when model results for specific sources approached applicable thresholds.

Table 5 lists emissions rates for the generator included in the dispersion modeling analyses.

| Table 5. MODELED GENERATOR EMISSIONS RATES | | |
|---|-------------------------|---|
| Pollutant | Averaging Period | Emission Rates (lb/hr)^a |
| PM ₁₀ ^b | 24-hour | 0.3 |
| | Annual | 0.09 ^c |
| Carbon Monoxide (CO) | 1-hour | 1.3 |
| | 8-hour | 1.3 |
| Sulfur dioxide (SO ₂) | 3-hour | 1.2 |
| | 24-hour | 1.2 |
| | Annual | 0.30 ^c |
| Oxides of nitrogen (NO _x) | Annual | 4.79 ^c |

a. Pounds per hour

b. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

c. Calculated on the basis of 90 days of operation

3.3 Emission Release Parameters

Table 6 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity. Values used in the analyses appeared reasonable and within expected ranges. Additional documentation /verification of these parameters were not required.

| Table 6. EMISSIONS AND STACK PARAMETERS | | | | | |
|--|--------------------|-------------------------------------|-----------------------------|--|--|
| Release Point /Location | Source Type | Stack Height (m)^a | Modeled Diameter (m) | Stack Gas Temp. (K)^b | Stack Gas Flow Velocity (m/sec)^c |
| EG-01 | Point | 3.35 | 75 ^d | 666 | 0.001 ^e |

a. Meters

b. Kelvin

c. Meters per second

d. Increased to properly account for plume rise resulting from thermal buoyancy

e. Decreased to eliminate momentum induced plume rise for a horizontal release

3.4 Results for Significant and Full Impact Analyses

Impacts of emissions from the generator are shown in Table 7. A full-impact analysis, with facility-wide emissions, was required for those pollutants and averaging periods where impacts from the generator exceeded the SCLs.

Facility-wide impacts for emissions sources other than the generator were evaluated by TASCO for the Tier II operating permit application, received by DEQ on September 1, 2004. DEQ has not yet completed review of these analyses; therefore, the results of the facility-wide modeling for this project were accepted by DEQ as submitted and certified by TASCO. The approach used in this application involved adding maximum impacts from the generator to maximum facility-wide impacts as calculated in the September 2004 Tier II application. This approach is likely very conservative since there is a low probability that maximum impacts associated with the generator coincide in time and space with maximum facility-wide impacts. Table 8 summarizes results of the full impact analyses.

PM₁₀ impacts in the facility-wide modeling were assessed using several methods to account for

the very close proximity of four pulp dryer stacks to each other and the close proximity of two boiler stacks to each other. Compliance with the PM₁₀ NAAQS could not be demonstrated without accounting for some level of plume merging, as shown in Table 8 below. Compliance was easily demonstrated when full plume merging was assumed. DEQ is confident that impacts of the generator will not significantly contribute to a 24-hour PM₁₀ NAAQS violation, especially considering the generator only exceeds SCLs at a very small number of receptors and times.

Table 7. RESULTS OF SIGNIFICANT IMPACT ANALYSES

| Pollutant | Averaging Period | Maximum Modeled Concentration (µg/m ³) ^a | SCLs ^b (µg/m ³) | Facility Wide Modeling Required |
|-------------------------------------|------------------|---|--|---------------------------------|
| PM ₁₀ ^c | 24-hour | 5.01 | 5.0 | Yes |
| | Annual | 0.171 | 1.0 | No |
| Carbon monoxide (CO) | 1-hour | 115 | 2,000 | No |
| | 8-hour | 46.4 | 500 | No |
| Sulfur dioxide (SO ₂) | 3-hour | 86.7 | 25 | Yes |
| | 24-hour | 20.1 | 5.0 | Yes |
| | Annual | 0.570 | 1.0 | No |
| Nitrogen dioxide (NO ₂) | Annual | 9.10 | 1.0 | Yes |

a. Micrograms per cubic meter

b. Significant contribution levels

c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

d. Assumes 100% of NO_x is NO₂

Table 8. RESULTS OF SIGNIFICANT AND FULL IMPACT ANALYSES

| Pollutant | Averaging Period | Modeled Impact of Generator (µg/m ³) ^a | Facility Wide Impact from 2004 Application (µg/m ³) | Background Concentration (µg/m ³) | Total Ambient Impact (µg/m ³) | NAAQS ^b (µg/m ³) | Percent of NAAQS |
|-------------------------------------|------------------|---|---|---|---|---|------------------------------------|
| PM ₁₀ ^c | 24-hour | 4.71 ^d | 61.0 ^e , 124.9 ^f | 38.6 | 104.3 ^e , 168 ^f | 150 | 70 ^e , 112 ^f |
| Sulfur dioxide (SO ₂) | 3-hour | 77.9 ^d | 348 | 34 | 459.9 | 1,300 | 35 |
| | 24-hour | 18.8 ^d | 141.3 | 26 | 186.1 | 365 | 51 |
| Nitrogen dioxide (NO ₂) | Annual | 9.10 ^{g,h} | 33.4 | 17 | 59.5 | 100 | 60 |

a. Micrograms per cubic meter

b. National ambient air quality standards

c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

d. Maximum of 2nd highest concentrations at all receptor locations

e. Boiler and pulp dryer stack plumes merged

f. Boiler and pulp dryer stack plumes unmerged

g. Maximum of 1st highest concentrations at all receptor locations

h. Assumes 100% of NO_x is NO₂

4.0 Conclusions

The ambient air impact analysis submitted by TASC0 demonstrated to DEQ's satisfaction that emissions from the generator, as represented by the applicant in the permit application, will not cause or significantly contribute to a violation of any air quality standard.